River Instream Flow Stewards
2003 Annual Report

The mission of the Riverways Programs is to promote the restoration and protection of the ecological integrity of the Commonwealth's rivers, streams and adjacent lands. All the Riverways Programs are based on the belief that local action is key to river protection. Riverways staff work side-by-side with local citizens, town officials and watershed associations to achieve the goals of restoration and protection of the state's riverine ecosystems. Goals include (1) protecting and restoring water quality,(2) protecting healthy stream flows; (3) protecting land along rivers and streams, (4) improving habitat for wildlife and fish in river corridors; (5) promoting pubic access to and/or along rivers for river-friendly recreation.

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Riverways' River Instream Flow Stewards (RIFLS) is an innovative, science-based program that addresses the harm caused to rivers and streams by depleted or altered stream flow, an environmental problem that has yet to receive the attention it deserves. To make good decisions about human water use while providing for the water needs of natural communities, policy and decision makers need to understand instream flow issues and base their decisions on facts. Without quantitative stream flow data, decision makers are forced to guess at potential environmental impacts of specific proposals. Surprisingly, this data is not currently available for most Massachusetts streams and rivers. To address this need for instream flow data, RIFLS brings together a diverse group of partners and provides technical assistance to document stream flow in order to protect and restore more natural flow regimes and the aquatic communities they support.

Stream flow and water quantity have been hot topics during recent years, and even during wet years some rivers and streams have run dangerously low or dry. Although streams and rivers in Massachusetts have a natural low-flow period in late summer and early fall, poor water management practices and consumptive uses such as excessive lawn watering, leaky pipes, sewers that discharge to other watersheds, manipulation of flows at dams, and urban sprawl can exacerbate low flow conditions and cause additional stress or even death to aquatic organisms and communities. In many cases the cause of unnaturally low flow is unknown and requires further investigation. Responding to the increasing concern over stream flow, the pilot River Instream Flow Stewards (RIFLS) program began training volunteers to record stream flow measurements on their local streams this year.

First Herring Brook in Scituate (left) and the Jones River in Kingston (right) were nearly dry this October, even though the region received above-average precipitation.

Commonwealth of Massachusetts
Riverways Programs

Planning

Much of the planning and organization work that took place in 2002 paid off for RIFLS this year as the pilot project got its feet wet, with a lot of help from a superb technical advisory committee. In 2003, RIFLS planning focused on local organizing, site selection, and volunteer training. Engaged and knowledgeable local steering committees and enthusiastic volunteers pooled their knowledge to create meaningful RIFLS programs in the Housatonic, Eel, First Herring Brook, and Jones River Watersheds.

2003 Planning Milestones:

- Quality Assurance Project Plan nearly approved by DEP
- Two technical advisory committee meetings helped develop:
  - quality control procedures;
  - criteria for choosing RIFLS groups; and
  - the Certification program for 2004.
- Two local steering committee meetings prioritized local sites
- Forty-five volunteers were trained to read staff gages

Materials

What new program is complete without education and outreach materials? In 2003, Riverways developed marketing, training, and data access materials for RIFLS, including:

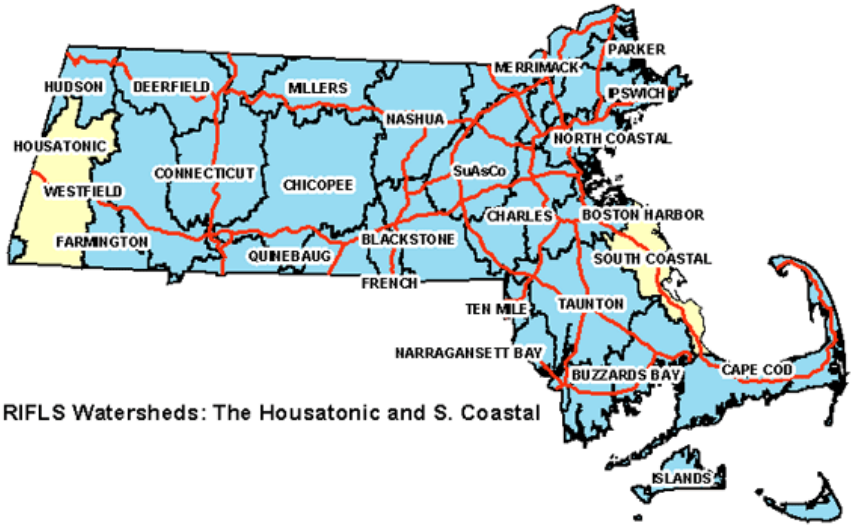
- Recruitment brochure and application
- Field data sheets
- Volunteer training presentation and manual
- Online data entry form and data display website for site information, data, and photos: http://www.rifls.org

Monitoring & Assessment

Local stewardship is at the heart of the RIFLS program and RIFLS volunteers came through with flying colors this year to create a comprehensive record of water depths and relevant observations at their sites. In conjunction with the volunteers' efforts, Riverways' RIFLS staff learned how to drill into concrete and hammer seven foot pipes into rocky stream bottoms to install staff gages. RIFLS staff was also trained to measure stream flows by the experts at USGS and made measurements at all twelve sites this year. These measurements will be used to develop rating tables, which convert water depth in feet to stream flow in cubic feet per second for each site.

2003 Monitoring Milestones:

- Staff gages installed at 12 sites
- 52 stream flow measurements made by Riverways staff
- 602 water depth measurements recorded by volunteers
- 218 site photographs taken by volunteers



RIFLS Watersheds: The Housatonic and S. Coastal

Funding

The RIFLS program operates on a shoestring budget, relying on our well-trained volunteers to tackle the brunt of the data collection and organizational tasks

2003 Funding Milestones:

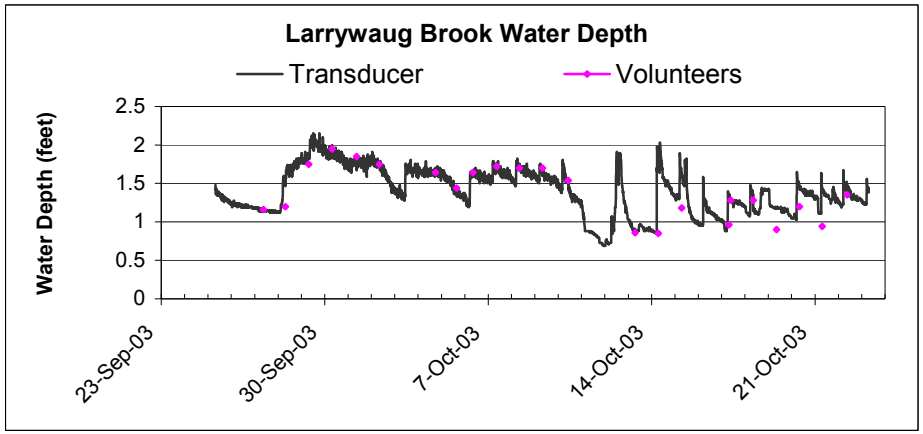
- A two year grant from the Massachusetts Environmental Trust
- Approximately 636 volunteer hours, an estimated value of $13,640
- USGS donation of staff time for training and planning assistance

Partnerships

Protecting and restoring more natural stream flows can be a daunting task and one that requires the cooperation of many groups. Partnerships are a key component of the RIFLS program that raise awareness of stream flow as a real issue in Massachusetts and enable stream flow data to be used locally and regionally to improve habitat, water quality, and water quantity conditions in the Commonwealth's rivers. Through the local steering committees, this year's RIFLS participants were able to enhance other ongoing initiatives and develop stronger ties to their river communities.

2003 RIFLS Participants & Partners

- Housatonic Valley Association
  - Friends of the Williams River volunteers-
- Eel River Watershed Association
  - UMass Estuaries Project nutrient loading model
  - Bridgewater State Watershed Access Lab teacher training
- First Herring Brook Watershed Initiative
  - Scituate Water Supply Committee - hydrologic budget for the Town's reservoir
- Jones River Watershed Association
  - Silver Lake High School environmental sciences class project



These pressure transducer (electronic water depth recorder) and volunteer water depth data document Larrywaug Brook's response to an attempted drawdown on Lake Mahkeenac (a.k.a. Stockbridge Bowl) just upstream. During late September and October, leaves frequently clogged the trash rack of the lake outlet, lowering stream flow in Larrywaug Brook. Note the immediate water depth spikes when the trash rack was cleared of leaves. Due to above average precipitation this fall, the drawdown of Lake Mahkeenac was not completed.

This stormwater sedimentation problem on Beartown Brook on September 18 (left) and 19 (right),was caught by Shep Evans, a RIFLS volunteer from Stockbridge who brought these photos to the local Conservation Commission and DEP. Additional erosion control devices were required at the construction site that was the source of the sediment and after several ineffective attempts to control the sediment entering this pristine brook, the problem appears to have been solved for now.

What's on tap for 2004?

This spring, RIFLS groups will hold **action planning meetings** to discuss their results from 2003, identify problems, and plan for next year. A report will be developed by partner groups and RIFLS staff that summarizes the year's data, identifies problems and describes any actions that will be taken as a result.

Continuing RIFLS groups will also be eligible to participate in the **pilot RIFLS Certification Program**. This program is being developed to train selected volunteers to make accurate stream flow measurements, maintain their own rating curves, and become self-sufficient RIFLS groups. This is a crucial step in the development of the statewide RIFLS program because it will enable staff to begin working with new groups on more rivers statewide.

The RIFLS program will also choose **2-3 new RIFLS groups** in 2004. Groups will be chosen based on the likelihood that the data will be used to protect or restore stream flow and aquatic habitats, the ability of partner groups to complete the project, and the availability of suitable sites on the river for staff gages and stream flow measurements.

Larrywaug Brook, Stockbridge

First Herring Brook gage readers, Scituate

Eel River, Plymouth

Williams River, Great Barrington

"The First Herring Brook Watershed Initiative has recently completed an extensive shoreline survey of streams in Scituate's drinking water supply watershed using methodolgy developed by the Riverways Program. Now the FHBWI has embraced the RIFLS program, another wonderful and very timely Riverways project developed by Margaret Kearns and Cindy Delpapa. It couldn't have come at a better time. Scituate is currently reaching the limit of its water supply Safe Yield Permit. Members of FHBWI are participating in a special Water Study Committe to address this issue. A major finding of this group is that there is no stream flow information for First Herring Brook and its network of small streams. These waterways could be detrimentally affected by an increase in groundwater withdrawal. Margaret has cheerfully inspired a sizable group of FHBWI volunteers with her enthusiasm and well planned approach toward collecting data to protect these fragile water resources. As Scituate faces the challenges of rapid growth Riverways has provided yet another opportunity to invigorate our organization and provide our community with meaningful information about its natural resources."

– Lance VanLenten, First Herring Brook Watershed Initiative